Message Text

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PAGE 01 TOKYO 07956 310932Z
ACTION OES-07

INFO OCT-01 EA-09 ISO-00 COME-00 EB-07 PA-02 USIA-15
CIAE-00 INR-07 NSAE-00 /048 W
----------310936Z 002206 /13
R 310856Z MAY 77
FM AMEMBASSY TOKYO
TO SECSTATE WASHDC 8197

UNCLAS TOKYO 7956

FOR OES/APT/SA; INR/DDC

DEPT. PASS USDOC/NBS FOR LINDAMOOD

E.O. 11652: N/A
TAGS: TECH, EQUIP, JA
SUBJECT: JAPANESE DEVELOPMENT OF NEW VLSI PRODUCTION TECHNOLOGY

REF: TOKYO 5209

1. THE VLSI TECHNOLOGY RESEARCH ASSOCIATION HAS ANNOUNCED SUCCESS IN DEVELOPING TECHNOLOGY WHICH INCREASES SPEED AND ACCURACY OF ELECTRON BEAM METHOD FOR MANUFACTURE OF INTEGRATED CIRCUITS. THE ANNOUNCEMENT INDICATES THAT THE NEW TECHNOLOGY ALLOWS PRINTING A CIRCUIT IN ONE TENTH THE TIME REQUIRED BY MACHINES USING STANDARD ELECTRON BEAM TECHNOLOGY. USING A SYSTEM OF PHYSICAL APERTURES AND AN ELECTROMAGNETIC LENS, THE NEW DEVICE PRODUCES AN ELECTRON BEAM WHICH PRINTS CIRCUITS AS A SERIES OF RECTANGLES. THE RECTANGLES ARE VARIABLE IN SIZE AND COVER MORE AREA THAN THE SERIES OF POINTS PRINTED BY OLDER TYPES OF MACHINES. SINCE MORE SURFACE AREA CAN BE EXPOSED IN THE SAME AMOUNT OF TIME, THE PRINTING IS DONE AT A MUCH HIGHER SPEED.

2. THE EQUIPMENT DEVELOPED BY THE ASSOCIATION CAN PRINT RECTANGLES OF ONE TO TWENTY-FIVE MICRONS IN WIDTH. THE
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HOPE IS TO PRODUCE A MACHINE WHICH CAN PRINT LINES LESS THAN ONE MICRON IN WIDTH BY 1979. IT IS HOPED THAT IMPROVEMENTS IN THE ELECTROMAGNETIC LENS WILL ACCOMPLISH THIS REFINEMENT.

3. REPORTEDLY, RESEARCHERS AT THE PHYSICAL AND CHEMICAL RESEARCH INSTITUTE, TOGETHER WITH RESEARCHERS

FROM FUJITSU WERE THE MAJOR PARTICIPANTS IN THE DEVELOP-
MENT PROJECT, EMPLOYING COMPONENTS MADE BY JAPAN ELECTRON
OPTICS LABORATORY AND FUJITSU. THE MINISTRY OF INTERNATIONAL
TRADE AND INDUSTRY, WHICH IS SPONSORING THIS RESEARCH
EFFORT, WILL CONTINUE TO SUPPORT THIS ACTIVITY FOR
THREE MORE YEARS, WITH SUBSIDIES AND ADMINISTRATIVE
GUIDANCE.

4. IBM IS SAID TO HAVE DEVELOPED SIMILAR PROCESS ABOUT
ONE YEAR AGO. FYI: TERM "PRINTING" USED IN ABOVE MEANS
EXPOSURE OF PHOTOSENSITIVE LAYER TO ELECTRON BEAM RADIATION.
END FYI.

5. EMBASSY WILL ATTEMPT TO OBTAIN MORE DETAILED TECHNICAL
INFORMATION ON THE NEW PROCESS FOR TRANSMITTAL TO DEPT.
SHOESMITH

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NNN

Margaret P. Grafeld Declassified/Released US Department of State EO Systematic Review 22 May 2009

Message Attributes

Automatic Decaptioning: X
Capture Date: 01-Jan-1994 12:00:00 am
Channel Indicators: n/a
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Concepts: COMPUTERS
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Disposition Case Number: n/a
Disposition Comment:
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Executive Order: N/A
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Original Handling Restrictions: n/a
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Original Previous Handling Restrictions: n/a
Page Count: 2
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Reference: 77 TOKYO 5209
Retention: 0
Review Action: RELEASED, APPROVED
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Review Release Date: n/a
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